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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,512	10/14/2004	Jeroen Anton Johan Leijten	NL02 0321 US	4657

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EXAMINER
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GIROUX, GEORGE

ART UNIT	PAPER NUMBER
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2112

DATE MAILED: 11/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/511,512

Applicant(s)

LEIJTEN, JEROEN ANTON  
JOHAN

Examiner

George D. Giroux

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

1. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Europe on 04-18-02.

### ***Oath/Declaration***

2. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirement prescribed in **37 C.F.R. 1.63**.

### ***Drawings***

3. The applicant's drawings submitted are acceptable for examination purposes.

### ***Specification***

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
5. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

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- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

6. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

7. The abstract of the disclosure is objected to because it is too long and it refers to the purported merits or speculative applications of the invention (specifically mentioning a reduction in power consumption, reduced state saving and increased performance).

The use of "Fig. 3" following line 15 is also objected to. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

8. Claim 2 is objected to because of the following informalities: in line 1 examiner suggests the addition of "further" between "Claim 1" and "comprising" to distinguish the

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additions of claim 2 from the elements of claim 1, and on line 2 the word "and" should be added after the semi-colon. Appropriate correction is required.

***Claim Rejections - 35 USC § 101***

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claim 2 is rejected under 35 U.S.C. 101, as the claimed invention is directed to non-statutory subject matter. The first and second instruction sets (lines 2 and 3) are directed to a judicial exception to 35 U.S.C. 101 and not directed to a practical application of such judicial exception because the claim does not require any physical transformation and does not produce any useful, concrete and tangible result. When nonfunctional descriptive material is recorded on some computer-readable medium it is not statutory since no requisite functionality is present to satisfy the practical application requirement.

***Claim Rejections - 35 USC § 112***

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Regarding claim 2, the word "means" is preceded by the word(s) "instruction set" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function in both lines 2 and 3. However, since no function is specified by the word(s) preceding "means," in either case, it is impossible to determine the equivalents of the elements, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

### ***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1 and 3 rejected under 35 U.S.C. 102(b) as being anticipated by Tremblay (WO 00/33178).

As per claim 1, Tremblay discloses "a plurality of issue slots, each one of the plurality of issue slots comprising a plurality of functional units" as [**"a plurality of functional units"**](page 2, line 17)], "a plurality of holdable registers" as [**"a multi-ported register file that is divided into a plurality of separate register file segments"**](page 2, lines 18-19)], and "the plurality of issue slots comprising a first set of issue slots and a second set of issue slots" and "a register file accessible by the plurality of issue slots" as [**"the VLIW processor also includes a plurality of functional units, each of which is coupled to and associated with a register file**

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**segment”(page 2, lines 31-32)]. Tremblay also discloses “a location of at least a part of the plurality of holdable registers in the first set of issue slots is different from a location of at least a corresponding part of the plurality of holdable registers in the second set of issue slots” as [“a multi-ported register file that is divided into a plurality of separate register file segments, each of the register file segments being associated to one of the plurality of functional units”(page 2, lines 17-19)].**

As per claim 3, Tremblay discloses “in the first set of issue slots the location of the plurality of holdable data registers is at individual data inputs of the functional units” as [“the local registers are read and written only by a functional unit associated with a particular register file segment”(page 2, lines 21-22)] and “in the second set of issue slots the location of the plurality of holdable data registers is at common data inputs of the functional units” as [“the global registers are read and written by all functional units”(page 2, line 20)].

### ***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 2 rejected under 35 U.S.C. 103(a) as being unpatentable over Tremblay (WO 00/33178) in view of Fisher (US Patent 6026479).

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As per claim 2, Tremblay and Fisher are analogous art, because they are from the same field of endeavor.

Tremblay teaches the “multi-issue processor according to Claim 1”, as described above. However, Tremblay fails to teach “a first instruction set means having access to at least the first set of issue slots; [and] a second instruction set means having access to the second set of issue slots.”

Fisher teaches “a first instruction set means having access to at least the first set of issue slots; [and] a second instruction set means having access to the second set of issue slots” as [**“A CPU having a cluster VLIW architecture...which operates in both a high instruction level parallelism (ILP) mode and a low ILP mode. In high ILP mode, the CPU executes wide instruction words using all operational clusters of the CPU and all of a main instruction cache and main data cache of the CPU are accessible to a high ILP task. The CPU also includes a mini-instruction cache, a mini-instruction register and a mini-data cache which are inactive during high ILP mode. An instruction level controller in the CPU receives a low ILP signal, such as an interrupt or function call to a low ILP routine, and switches to low ILP mode. In low ILP mode, the main instruction cache and main data cache are deactivated to preserve their contents. At the same time, a predetermined cluster remains active while the remaining clusters are also deactivated. The low ILP task executes instructions from the mini-instruction cache which are input to the predetermined cluster through the mini-instruction register. The mini-data cache stores operands for the low ILP task”**](abstract, lines 1-19)].



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At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the processor—with multiple register file segments associated to particular functional units—of Tremblay, with the multiple instruction sets of Fisher. The motivation for doing so is provided by Fisher in **["the separate mini-instruction cache and mini-data cache along with the use of only the predetermined cluster minimizes the pollution of the main instruction and data caches, as well as pollution of register files in the deactivated clusters, with regard to a task executing in high ILP mode"]**(abstract, lines 20-24)].

### ***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George D. Giroux whose telephone number is 571-272-9769. The examiner can normally be reached on Monday through Friday, 7:30am - 5:00pm E.S.T.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pierre Vital, can be reached on 571-272-4215. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

08-06-2006

George D. Giroux  
Art Unit 2112



PIERRE VITAL  
SUPERVISORY PATENT EXAMINER